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The results of the radiological survey for Building 010 at the Santa Susana Field Laboratories are described. All survey results are below the applicable limits, indicating that this area may be released to unrestricted use.

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## I. INTRODUCTION

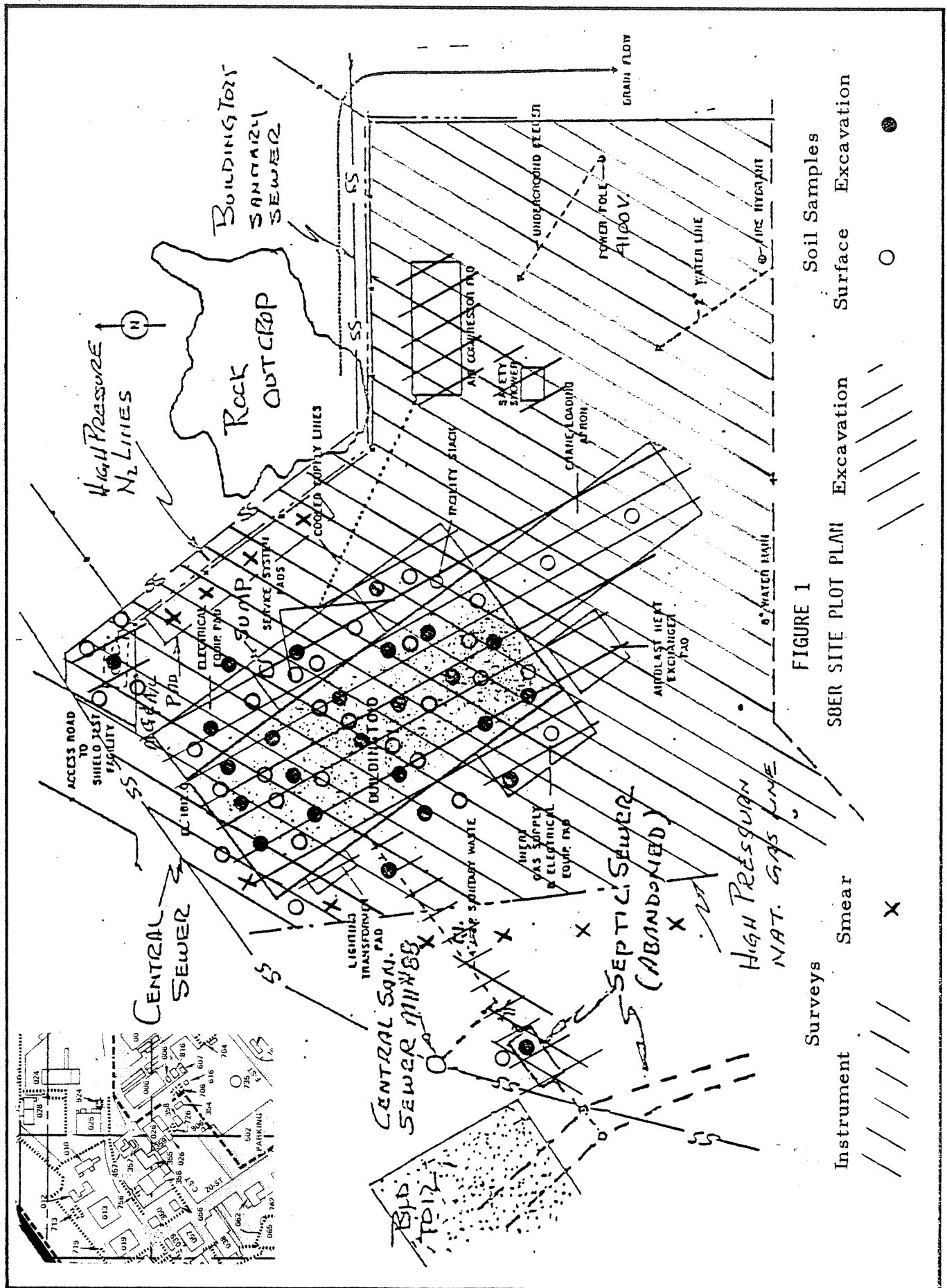
Building 010, the S8ER test facility at the Santa Susana Field Laboratories, was constructed in 1959 for the 50 kWt SNAP 2 Experimental Test Reactor. Following satisfactory completion of SNAP 2 operations in 1960, modifications were made to the facility to enable testing the SNAP 8 Experimental Reactor (S8ER); the location and arrangement of this facility are shown in Figure 1. Figure 2 shows an artist's cutaway of Building 010 as it existed for testing S8ER.

Decontamination and disposition of the S8ER facility began September 12, 1977, and the facility was released for unrestricted use on March 17, 1978.

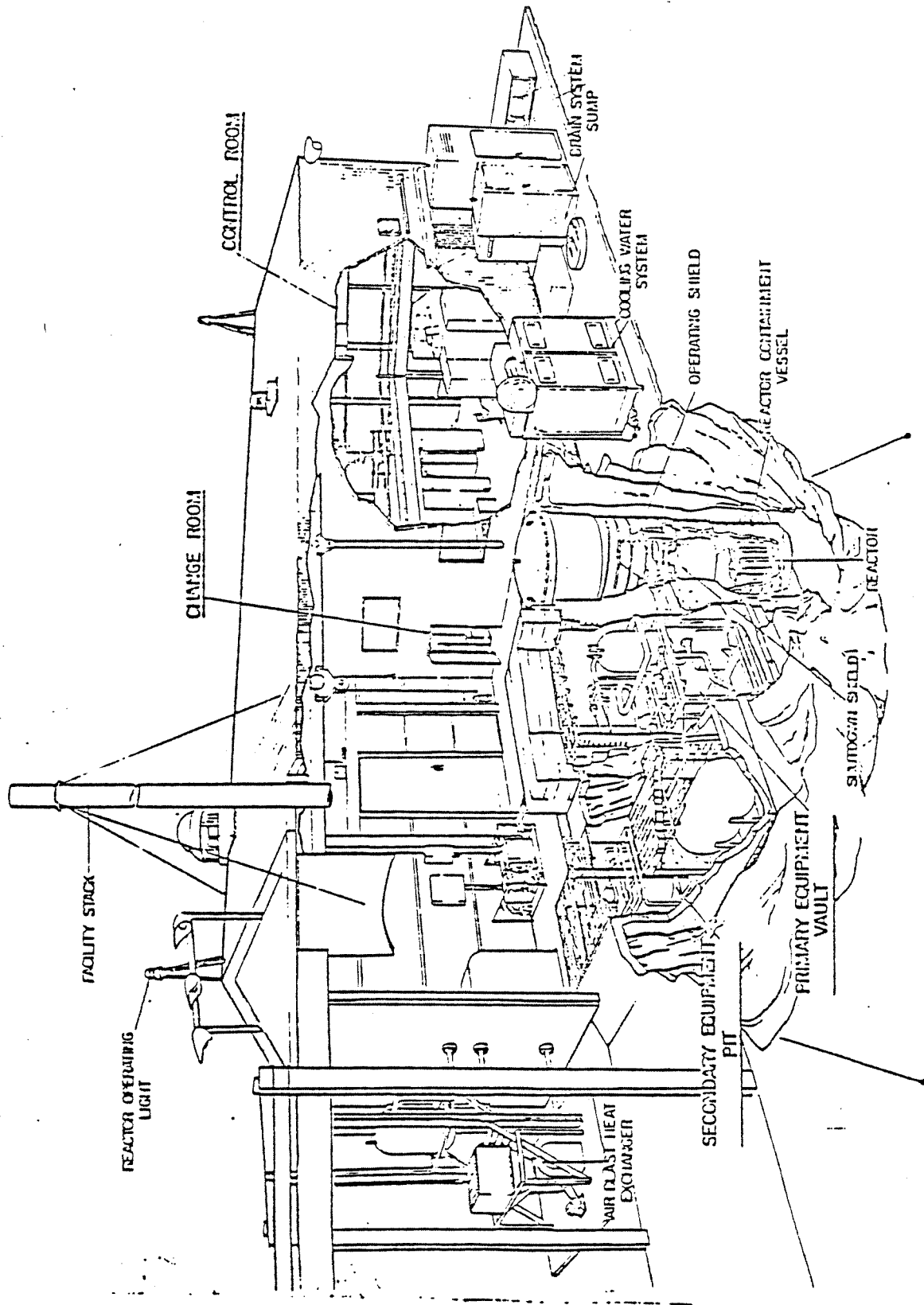
Major operations performed were the removal of the containment vessel, primary and equipment vault liners, the waste gas stack system, the waste gas storage tank, and sump drain system.

All radioactive or contaminated concrete and soil and components were packaged for shipment to offsite land burial. The building structure was dismantled and the below-grade excavation of the vault was backfilled with clean dirt and sand.

A sanitary leach field was used during the first few years of operation, but no contamination of this field was thought to have occurred. This field was removed during construction of Building 012.



# S8ER BUILDING



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FIGURE 2 - ARTIST'S CUTAWAY

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## II. SURVEYS AND RESULTS

### A. REMOVABLE CONTAMINATION

Approximately 200 smears were taken on smooth surfaces (concrete, piping, and steel) at the end of demolition.

Results of smear surveys after removal of the building structure, excavation and backfilling of vaults, and all remaining underground piping were documented at less than 50 dpm/100 cm<sup>2</sup>. All smears were counted for  $\alpha$  and  $\beta$  activity on a Nuclear Measurements Corporation automatic counting system with an average background count of 25 cpm in the  $\beta$  channel and a counting efficiency factor of 2.35 dpm/cpm for  $\beta$ . The efficiency factor corrects the net count rate for geometric and electronic detection efficiency and for absorption in the sample. Alpha contamination was not suspected for this area; however, had any occurred, it would have been detected with this automatic counting system.

Drain lines to the current sewer and to the previous leach field were smeared, and all smears were less than 50 dpm/100cm<sup>2</sup>  $\beta$ .

### B. SURFACE RADIATION

At the conclusion of the D&D effort, a complete walk-through survey of the area was conducted using a Technical Associates Model CP-7  $\beta$ - $\gamma$  ion chamber detector. The maximum dose rate detected was 0.05 mrad/hr with an average background of 0.04 mrad/hr outside the perimeter fence line. All readings were below the 0.1 mrad/hr limit. Background on this instrument is 0.04 ( $\pm$ 0.05 mrad/hr). Drain lines were specifically checked with this instrument.

#### C. SOIL SAMPLES

Soil samples were collected from the area after backfilling was completed to detect any distributed activity. All soil samples were less than 50 pCi/g. The activity of natural uncontaminated soil in this area is about 20-30 pCi/g.

All one-gram soil samples were counted on a Nuclear Chicago automatic counting system with a KCl standard, with an average background of 20 cpm and a counting efficiency factor of 6.5 dpm/cpm.

#### D. CONCRETE SAMPLES

Prior to backfilling of the vessel pit, concrete samples were obtained from a small portion of the equipment vault wall. All samples were less than 50 pCi/g. All clean sampled concrete was used as backfill for ditch repair between Rocketdyne Area 1 and Area 2 following heavy rains.

All concrete samples were counted on a Nuclear Chicago automatic counting system with a KCl standard, average background of 20 counts per minute and a counting efficiency factor of 6.5 dpm/cpm.

#### E. WATER SAMPLES

Water samples were collected during the duration of dismantling from the sump drain system and vessel pit, where water accumulated following heavy rains. Of the samples collected, none were over  $4.5 \times 10^{-8} \mu\text{Ci/cc}$ , below the limit of  $3 \times 10^{-7} \mu\text{Ci/cc}$  Sr-90.

The 200 ml water samples were evaporated to about 10 ml on a hot plate, heated to dryness in a counting planchette, and counted on a Nuclear Chicago automatic counting system with an average background of 20 counts per minute and 2.59 dpm/cpm efficiency factor. No water samples were collected at the conclusion of the demolition as there was no water remaining at the facility.

### III. CONCLUSIONS

In each type of test performed, all samples indicated levels less than those limits prescribed by the Decontamination and Disposition of Facilities Program for release to unrestricted use.

All appropriate surveys indicate that current existing radioactivity in the area is below the applicable limits for release to unrestricted use.